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(54) Title: ASSAY METHOD

(57) Abstract: Methods of determining susceptibility to resistance to anti-cancer drugs such as fluoropyrimidines, antimetabolites and platinum-containing compounds are described. DNA microarray technology was used to investigate changes in the transcriptional profile of the MCF-7 breast cancer cell line following treatment with fluoropyrimidines. Upregulated genes included the genes encoding Raf, K-ras, SLAP, phosphoinositide 3-kinase, COP9 homolog (HCOP9), apoptosis specific protein, APO-1 cell surface antigen, FLIP protein, cyclin G, CDC2, cyclin-dependent protein kinase -2, thymosin  $\beta$ -10, myosin light chain (MLC-2), gelsolin, thymosin  $\beta$ -4, SSAT, spermidine synthase, spermidine aminopropyltransferase, MAT-8 protein, annexin II, annexin IV, FGF receptor 2, transmembrane 4 superfamily protein, chaperonin 10, enoyl-CoA hydratase, nicotinamide nucleotide transhydrogenase, ribosomal protein S28, ribosomal protein L37, L23 mRNA for putative ribosomal protein, and ribosomal protein L7. Also described are assays for identifying novel chemotherapeutic agents.

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